

## Amplite™ Colorimetric Aldehyde Quantitation Kit

### \*Blue Color\*

Ordering Information	Storage Conditions	Instrument Platform
Product Number: 10053 (200 assays)	Keep at -20 °C Avoid exposure to light	Absorbance microplate readers

### Introduction

The formation, reactivity and toxicity of aldehydes resulted from the peroxidation of lipids of cellular membranes have received great attention in recent years. Rapid and accurate measurement of aldehydes is an important task for biological research, chemical research, food industry and environmental pollution surveillance. There are a few reagents or assay kits available for quantifying aldehydes. Most of the existing aldehyde test methods are based on separations either by the tedious and expensive HPLC-MS or GC-MS.

Our Amplite™ Colorimetric Aldehyde Quantitation Kit uses a proprietary sensor that generates a chromogenic product with an absorbance at 620 nm upon reacting with an aldehyde. This kit provides a sensitive mix-and-read method to detect as little as 0.3 nanomole of aldehyde in a 100 µL assay volume (3 µM). The assay can be performed in a convenient 96-well or 384-well microtiter-plate format and easily adapted to automation without a separation step and the signal can be read by an absorbance plate reader at the wavelength between 620 and 660 nm.

### Kit Key Features

<b>Broad Application:</b>	Used for quantifying aldehydes in a variety of applications, such as enzyme reactions.
<b>Sensitive:</b>	Detect as little as 0.3 nanomoles of aldehyde in a 100 µL assay volume.
<b>Continuous:</b>	Easily adapted to automation without a separation step.

### Kit Components

Components	Amount
Component A: AldeView™ Blue	2 bottles
Component B: Assay Buffer	1 bottle (25 mL)
Component C: AldeView™ Blue Enhancer	1 bottle (10 mL)
Component D: Aldehyde Standard	1 vial

### Assay Protocol for One 96-Well Plate

#### Brief Summary

**Prepare Aldehyde standards and/or test samples (50 µL) → Add 2X AldeView™ Blue reaction mixture (50 µL)  
→ Incubate at RT for 20 minutes → Add 50 µL of AldeView™ Blue Enhancer → Incubate  
at RT for 20 minutes → Monitor absorbance increase at 620 nm**

*Note: Thaw all the kit components to room temperature before starting the experiment.*

#### 1. Prepare 2X AldeView™ Blue reaction mixture:

Add 5 mL of Assay Buffer (Component B) into one bottle of AldeView™ Blue (Component A) to make AldeView™ Blue reaction mixture.

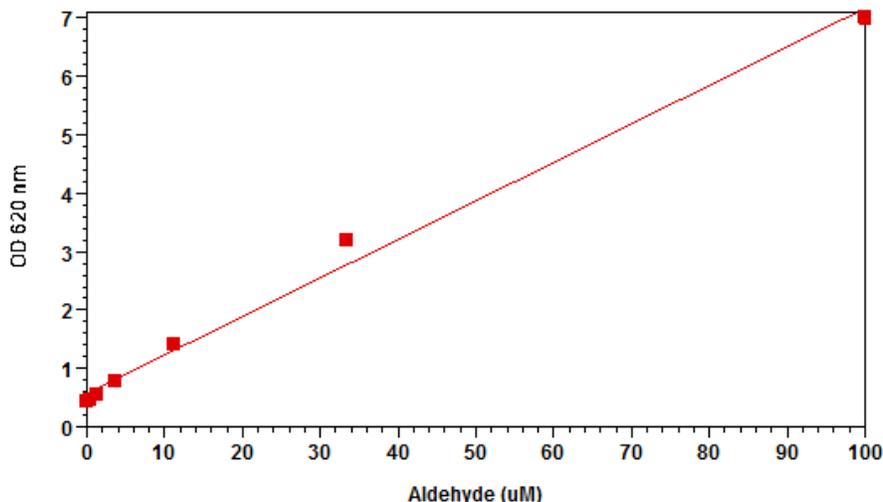
*Note: 5 mL of 2 X AldeView™ Blue reaction mixture is enough for one plate. The reaction mixture is not stable, and best used within 2 hours.*



## Data Analysis

The absorbance in blank wells (with 0  $\mu\text{M}$  Aldehyde Standard) is used as a control, and is subtracted from the values of those wells with the aldehyde reactions. An aldehyde standard curve is shown in Figure 1.

*Note: The absorbance background increases with time, thus it is important to subtract the absorbance value of the blank wells for each data point.*



**Figure 1.** Aldehyde dose response was measured in a white wall/clear bottom 96-well plate with Amplitude™ Colorimetric Aldehyde Quantitation Kit using a SpectraMax microplate reader (Molecular Devices). As low as  $\sim 3 \mu\text{M}$  of aldehyde can be detected with 30 minutes incubation ( $n=3$ ).

## References

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2. Crabb DW, Matsumoto M, Chang D, You M (2004). Overview of the role of alcohol dehydrogenase and aldehyde dehydrogenase and their variants in the genesis of alcohol-related pathology. *The Proceedings of the Nutrition Society* 63 (1): 49.
3. Steinmetz CG, Xie P, Weiner H, Hurley TD (1997). Structure of mitochondrial aldehyde dehydrogenase: the genetic component of ethanol aversion. *Structure* 5 (5): 701.
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6. Ou Z, Ogamo A, Guo L, Konda Y, Harigaya Y, and Nakagawa Y. (1995). Identification and quantitation of choline glycerophospholipids that contain aldehyde residues by fluometric high-performance liquid chromatography. *Analytical biochemistry* 227, 289.

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